

L6 ANSWER 1 OF 1 SCISEARCH COPYRIGHT 1998 ISI (R)
 ACCESSION NUMBER: 90:76161 SCISEARCH
 THE GENUINE ARTICLE: CL594
 TITLE: FORCE MICROSCOPE WITH CAPACITIVE DISPLACEMENT
 DETECTION
 AUTHOR: GODDENHENRICH T (Reprint); LEMKE H;
 HARTMANN U; HEIDEN C
 CORPORATE SOURCE: KFA JULICH GMBH, INST THIN FILM & ION TECH, POB
 1913, W-5170 JULICH 1, GERMANY (Reprint)
 COUNTRY OF AUTHOR: GERMANY
 SOURCE: JOURNAL OF VACUUM SCIENCE & TECHNOLOGY A-VACUUM
 SURFACES AND FILMS, (1990) Vol. 8, No. 1, pp.
 383-387.
 DOCUMENT TYPE: Article; Journal
 FILE SEGMENT: PHYS; ENGI
 LANGUAGE: ENGLISH
 REFERENCE COUNT: 14
 CATEGORY: PHYSICS, APPLIED
 RESEARCH FRONT: 90-0502 004; SCANNING TUNNELING MICROSCOPY;
 ANOMALOUS FORCE DEPENDENCE; ATOMIC POSITIONS

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)
ABRAHAM D W	1988	53	1446	APPL PHYS LETT
ANDERS M				IN PRESS J MICROSC
BINNIG G	1986	56	930	PHYS REV LETT
GODDENHENRICH T	1988	152	527	J MICROSC-OXFORD
GRUTTER P	1988	6	279	J VAC SCI TECHNOL A
HARTMANN U	1988	152	281	J MICROSC-OXFORD
HARTMANN U	1985	18	2285	J PHYS D APPL PHYS
HARTMANN U	1989	137	475	PHYS LETT A
MARTI O	1987	6	2089	J VAC SCI TECHNOL A
MARTIN Y	1987	50	1455	APPL PHYS LETT
MARTIN Y	1987	61	4723	J APPL PHYS
MCCLELLAND G M	1987	6	1307	REV PROGR QUANTITA B
RUGAR D	1988	59	2337	REV SCI INSTRUM
WHITE G K	1961	1	151	CRYOGENICS

L3 ANSWER 1 OF 5 SCISEARCH COPYRIGHT 1998 ISI (R)
 ACCESSION NUMBER: 91:130391 SCISEARCH
 THE GENUINE ARTICLE: EZ923
 TITLE: A NEW FORCE SENSOR INCORPORATING FORCE-FEEDBACK
 CONTROL FOR INTERFACIAL FORCE MICROSCOPY
 AUTHOR: JOYCE S A (Reprint); HOUSTON J E
 CORPORATE SOURCE: SANDIA NATL LABS, ALBUQUERQUE, NM, 87185 (Reprint)
 COUNTRY OF AUTHOR: USA
 SOURCE: REVIEW OF SCIENTIFIC INSTRUMENTS, (1991)
 Vol. 62, No. 3, pp. 710-715.
 DOCUMENT TYPE: Article; Journal
 FILE SEGMENT: PHYS; ENGI
 LANGUAGE: ENGLISH
 REFERENCE COUNT: 26
 ABSTRACT:

A new interfacial-force microscope capable of measuring the forces between two surfaces over the entire range of surface separations, up to contact, is described. The design is centered around a differential-capacitance displacement sensor where the common capacitor plate is supported by torsion bars. A force-feedback control system is incorporated which balances the interfacial forces at the sensor, maintaining the common capacitor plate at its rest position. This control therefore eliminates the instability or "jumping" which occurs with conventional cantilever-based force sensors when the attractive force gradient between the fixed sample and sensor exceeds the mechanical stiffness of the cantilever. The operating characteristics of the sensor and its ability to measure interfacial forces using the feedback control at surface separations smaller than this instability point are demonstrated.

CATEGORY: PHYSICS, APPLIED; INSTRUMENTS & INSTRUMENTATION
 SUPPL. TERM PLUS: ATOMIC-SCALE FRICTION; TUNGSTEN TIP; SURFACE
 RESEARCH FRONT: 91-0497 003; ATOMIC FORCE MICROSCOPY; ELASTIC TIP
 SURFACE INTERACTIONS; IMAGING NANOMETER SCALE
 DEFECTS IN LANGMUIR-BLODGETT-FILMS
 91-4102 001; SURFACE FORCES; ADSORBED LAYERS;
 ELECTROSTATIC INTERACTION; AQUEOUS
 ETHYL(HYDROXYETHYL)CELLULOSE SOLUTIONS

REFERENCE(S):

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)
BINNIG G	1986	12	930	PHYS REV LETT
BRAGINSKY V B	1977			MEASUREMENT WEAK FOR
BRYANT P J	1990	8	3502	J VAC SCI TECHNOL A
BURNHAM N A	1989	7	2906	J VAC SCI TECHNOL A
BURNHAM N A	1990	64	1931	PHYS REV LETT
DERJAGUIN B V	1978	272	313	NATURE-PHYS SCI
DURIG U	1986	57	2403	PHYS REV LETT
ERLANDSSON R	1988	89	5190	J CHEM PHYS
GODDENHENRICH T	1990	8	383	J VAC SCI TECHNOL A
HOROWITZ P	1980		120	ART ELECTRONICS
ISRAELACHVILI J N	1989	1	1	CHEMTRACTS ANAL PHYS
ISRAELACHVILI J N	1985			INTERMOLECULAR SURFA
LANDMAN U	1989	7	2829	J VAC SCI TECHNOL A
LODGE K B	1983	19	27	ADV COLLOID INTERFAC
MARTIN Y	1987	61	4723	J APPL PHYS
MATE C M	1987	59	1942	PHYS REV LETT
MEYER E	1989	181	527	THIN SOLID FILMS

MILLER G L	1990	61	1266	REV SCI INSTRUM	
NEUBAUER G	1990	61	2296	REV SCI INSTRUM	
NEUBERT H K P	1963			INSTRUMENT TRANSDUCE	
PETHICA J B	1988	6	2490	J VAC SCI TECHNOL A	
RUGAR D	1989	55	2588	APPL PHYS LETT	
SMITH J R	1989	63	1269	PHYS REV LETT	
TABOR D	1969	312	435	P ROY SOC	A
TAYLOR P				UNPUB	
WEISENHORN A L	1989	54	2651	APPL PHYS LETT	